The Cold War

Diesel-powered submarines played a critical role in the U.S. Navy's success during WWII. But the allied victory over German U-boats in the Atlantic indicated that submarines designed primarily for surfaced operations had limited future effectiveness. Two issues confronted designers - greater underwater speed and endurance. The first issue, speed, was addressed in 1945 through hull shape experiments at the Navy's David Taylor Model Basin. These tests resulted in the "teardrop" hull design. First implemented on the experimental *USS Albacore* (SS-569), the teardrop design enabled unprecedented submerged speeds. The advent of nuclear power solved the undersea endurance problem, and truly revolutionized submarine design and naval warfare. In 1954, the Navy launched *USS Nautilus* (SSN-571), the world's first nuclear-powered submarine. *USS Skipjack* (SSN-585) was the first submarine to combine the endurance of nuclear propulsion and the high-speed teardrop hull design. Every American submarine built since 1958 incorporates these features.

USS *George Washington (SSBN-598),* the first of the "Forty-one for Freedom" submarines.

Throughout the Cold War, U.S. military forces contained and deterred the Soviet Union and her allies from attacking the free world. The Submarine Force played a vital role, checking the Soviets in two ways. First, U.S. ballistic missile submarines deterred nuclear war by maintaining a survivable retaliatory strike capability against any nuclear attack on the U.S. Second, U.S. attack submarines monitored the rapidly expanding Soviet Navy while conducting intelligence, surveillance, and reconnaissance missions. (See Submarine Centennial Logs "Fleet Ballistic Missile Submarines" and "Fast Attack Submarines" for more information.)

Dominance over the Soviet Navy was vital in preserving maritime superiority during the Cold War. During this time period, U.S. attack submarines monitored Soviet naval development and open ocean naval operations in the Mediterranean, Atlantic, and Pacific oceans. U.S. SSNs obtained vital information on Soviet naval capabilities and weaknesses while underscoring American determination to defend the nation and her allies from attack. While almost all Cold War operations remain classified, two recently declassified missions showcase Submarine Force capabilities. *USS Guardfish* (SSN-612) silently tracked a Soviet cruise missile (SSGN) submarine which was following U.S. aircraft carriers off Vietnam in the 1970's - ready to protect our ships should the SSGN launch her missiles. In 1978, in the Atlantic, *USS Batfish* (SSN-681) tracked a Soviet ballistic missile submarine (SSBN) sailing off the East Coast of the U.S.- learning Soviet SSBN patrol areas and operating patterns and providing early indications of any potential surprise attack on the U.S.

***USS Drum (SSN-677),* a *Sturgeon* class Attack Submarine -- one of many Cold War workhorses.**

As the Cold War progressed, the Soviet Navy expanded substantially in size and capability. Concerned about U.S. submarine superiority, the Soviet Union devoted considerable resources to improving the quality of their submarine force, which throughout the Cold War was much larger than the U.S. Submarine Force. By the 1980's, Soviet submarines had narrowed, but not eliminated, the submarine technology gap. The U.S. Navy counted on the superiority of its submarines and, above all, its submariners in the event of hostilities.

In the 1980's, the U.S. Navy adopted the Maritime Strategy, which envisioned a wartime thrust into ocean areas adjoining the Soviet Union in order to defend Northern Europe against a Soviet invasion. U.S. military planners foresaw a key role for submarines in the Maritime Strategy. They counted on the stealth and superiority of U.S. submarines to destroy Soviet warships capable of targeting U.S. battle groups. Additionally, U.S. submarines focused on Arctic warfare, where Soviet submarines, including SSBNs, were expected to operate in the event of war.

The Cold War ended in 1989-91 with the collapse of the Warsaw Pact and the Soviet Union. For over 40 years submariners played a largely unheralded role protecting and defending the United States and her allies from nuclear and conventional attack. Often away from home for deployments of six months or longer, the men of the Submarine Force kept careful watch over their Cold War adversaries, while preparing for and deterring war.

General Characteristics, *Skipjack* Class

Builders: Electric Boat Company, CT; Ingalls Shipbuilding, MS; Newport News Shipbuilding, VA; Mare Island Naval Shipyard (NSY), CA
Power Plant: One nuclear reactor, one shaft
Length: 251.8 feet (76.8 meters)
Beam: 31.8 feet (9.7 meters)
Displacement: Approx. 3,070 tons surfaced, 3,500 tons submerged (3119/3556 metric tons)
Speed: 25+ knots (46+ km per hour)
Crew: 11 Officers, 107 Enlisted
Armament: Six 21-inch (533 mm) torpedo tubes; Mk 14, Mk 16, Mk 48 torpedoes
Date Deployed: 15 April 1959 (*USS Skipjack*)

General Characteristics, *Permit* Class

Builders: Puget Sound Naval Shipyard, WA; New York Shipbuilding Corp, NJ.; Electric Boat Company, CT; Ingalls Shipbuilding, MS; Mare Island NSY, CA
Power Plant: One nuclear reactor, one shaft
Length: 278.6 feet (84.9 meters) (SSN-593 - SSN-621); 297.3 (90.6 meters) (SSN-605); 292.3 (89.1 meters) (SSN-613 - SSN-615)
Beam: 31.8 feet (9.7 meters)
Displacement: Approx. 3,705 tons surfaced, 4,311 tons submerged (3764/4380 metric tons)
Speed: 25+ knots (46+ kph)
Crew: 13 Officers, 115 Enlisted
Armament: Four 21-inch (533 mm) torpedo tubes; Mk 14, Mk 16, Mk 37, Mk 48 torpedoes; mines; *SUBROC*, *Harpoon*
Date Deployed: 3 August 1961 (*USS Thresher*)

General Characteristics, *Sturgeon* Class

Builders: General Dynamics Electric Boat Division, CT; General Dynamics, Quincy Shipbuilding Division, MA; Ingalls Shipbuilding, MS; Portsmouth NSY, NH; San Francisco NSY, CA; and Newport News Shipbuilding, VA
Power Plant: One nuclear reactor, one shaft
Length: 292 feet (89 meters), (SSN-637 - SSN-677); 302 feet (92 meters) (SSN-678 - SSN-687)
Beam: 32 feet (9.8 meters)
Displacement: Approx. 4,229 tons surfaced, 4,762 tons submerged (4297/4838 metric tons)
Speed: 25+ knots (46+ kph)
Crew: 13 Officers, 117 Enlisted
Armament: Four 21-inch (533 mm) torpedo tubes; Mk 37, Mk 48 torpedoes; mines; *SUBROC*, *Harpoon*, *Tomahawk*
Date Deployed: 6 December 1966 (*USS Queenfish*)